DOES A COOPERATIVE CLIMATE ALWAYS LEAD TO KNOWLEDGE SHARING? THE ROLES OF INTRINSIC MOTIVATION AND JOB AUTONOMY

Keywords: Knowledge sharing, organizational climate, cooperative climate, intrinsic motivation, job autonomy.

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ABSTRACT

A cooperative climate in the organization is generally thought to promote knowledge sharing behaviors among employees. However, research shows that management faces significant difficulties in controlling and shaping the climate towards this aim. In this research we develop and test a contingency model of intrinsic motivation and job autonomy as moderators of this relationship. We find that a cooperative climate better predict knowledge sharing when employees show lower levels of intrinsic motivation and face high levels of job autonomy. Our research is aimed to enhance the likelihood that a managerial intervention in developing a cooperative climate will result in higher levels of knowledge sharing.

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1. INTRODUCTION

A fundamental objective for managers in an increasing number of firms is to promote the sharing of knowledge among employees in the organization. Scholars and practitioners have devoted significant efforts to exploring the antecedents and consequences of knowledge sharing (Argote, McEvily, & Reagans, 2003; Foss, Husted, & Michailova, 2010). Evidence reveals that the engagement in knowledge sharing activities is positively linked to the development of new products and services (Hansen, 1999; Smith, Collins, & Clark, 2005), the transfer of best organizational practices (Szulanski, 1996) and can represent a source of competitive advantage (Kogut & Zander, 1992; Reagans & McEvily, 2003). Existing research on the topic has assumed knowledge sharing as an externally determined phenomenon, not spontaneously happening (Bock & Kim, 2002; Davenport & Prusak, 1998; Szulanski, 1996) that is usually explained as a combination of individual and contextual factors (Collins & Smith, 2006; Kogut & Zander, 1992; Smith et al., 2005). Knowledge sharing is a discretionary activity, and individuals in organizations are presented with opportunities to share knowledge (Cabrera & Cabrera, 2005; Reagans & McEvily, 2003; Reinholt, Pedersen, & Foss, 2011). Contextual conditions and situational cues, such as a social climate characterized by cooperation (Leana & Buren, 1999; Szulanski, Cappetta, & Jensen, 2004), teamwork (Smith et al., 2005) and trust (Nahapiet & Ghoshal, 1998), have a powerful influence on the employee's decision to exploit knowledge sharing opportunities (Collins & Smith, 2006; Schepers & Berg, 2006).

However, while the importance of the social climate in the decision to share knowledge is well acknowledged in existing literature, it is also well recognized that shaping the social climate towards cooperation often requires significant investments in terms of time and effort spent by management and employees (Collins & Smith, 2006; Ruggles, 1998) as the "climate of the organization is very difficult to change" and because of the "diversity" of employee beliefs, values and other characteristics (Schneider, Brief, & Guzzo, 1996:4). Therefore, managers who wish to promote knowledge sharing by influencing the organizational climate should take substantial diversity, ambiguity and inertia into account (Foss et al., 2010). Given this, the questions are to what extent a cooperative climate is strictly necessary to promote knowledge sharing among all employees, and whether management, rather than undertaking costly investments in building a cooperative climate, may instead rely on other, perhaps more easily manipulable instruments? Extant research gives little direct insight into these questions.

To address and partly answer them, we test a contingency model of the link between a cooperative climate and the employee's knowledge sharing behavior in the organization. Specifically, we argue that the relation between a cooperative climate and knowledge sharing is contingent upon the employee's intrinsic motivation to share knowledge (Deci & Ryan, 1985, 2000) and the employee's job autonomy (Hackman & Greg R. Oldham, 1976). We draw on self-determination theory (SDT) (Deci & Ryan, 1985, 2000) which provides a conceptual framework that has been widely incorporated into management research (e.g.:Gagné, 2009; Gagné & Deci, 2005; Grant, 2007; Grant, 2008; Grant & Berry, 2011). Based on this theory, we argue that employees may find knowledge sharing inherently interesting. The higher employees are in intrinsic motivation, the less important will a cooperative climate be for their decision to share knowledge. To capture the extent to which employees have opportunities to benefit from a cooperative climate to share knowledge, we introduce the role job autonomy (Foss, Minbaeva, Pedersen, & Reinholt, 2009; Hackman & Greg R. Oldham, 1976). Specifically, we examine whether job autonomy moderates the link between a cooperative climate and knowledge sharing.

2. THEORY AND HYPOTHESES

2.1 Cooperative Climate and Knowledge Sharing Behavior

Knowledge sharing is defined as the provision or receipt of task information, know-how and feedback on a product or a procedure (Hansen, 1999). It is conceptualized as a discretionary behavior that allows organizations to exploit knowledge-based resources and which may ultimately lead to a competitive advantage (Cabrera & Cabrera, 2005; Davenport & Prusak, 1998; Nahapiet & Ghoshal, 1998)Cabrera and Cabrera, 2005; Davenport and Prusak, 1998; Nathapiel and Ghoshal, 1998). By connecting previously unconnected ideas or recombining existing knowledge in novel ways, organizations benefit from a higher level of absorptive capacity (Cohen & Levinthal, 1990), organizational learning (Hansen, 2002; Kogut & Zander, 1992), and knowledge creation (Cohen & Levinthal, 1990; Tsai, 2001).

Among the broad relational context where knowledge sharing takes place, the organizational climate has been acknowledge as a significant force to explain employee's behavior to share knowledge (Collins & Smith, 2006; Smith et al., 2005; Wasko & Faraj, 2005). Knowledge sharing research has primarily focused on how facet-specific climates promote the exchange of knowledge among organizational members. Given the discretionary nature of knowledge sharing, scholars have tended to focus on the cooperative aspects of the organizational climate. Thus, Collins & Smith (2006) develop and test a model where they relate a social climate of trust, cooperation and shared codes and language with higher levels of knowledge exchange and combination in the organization. They argue that a firm social climate can encourage employees to focus on the larger community of the organization rather than on their own interests. Therefore, knowledge acquisition and provision can be facilitated among them.

Although extant research has provided evidence concerning the link between climate and cooperation, the research literature offers little direct insight on the nature of the causal mechanisms through which cooperative climate links to knowledge sharing. We argue that climate cues tend to influence the decision to share knowledge through a number of causal mechanisms. First, social psychologists propose that interactions among organizational members are likely to create descriptive norms of behavior (Cialdini & Trost, 1998). These descriptive norms are informally agreed on by group members, and develop from watching what others do in certain situations (Ehrhart & Naumann, 2004). Consistent with this idea, Bock et al., 2005) showed that employees perceiving group norms to share knowledge are more inclined to engage in knowledge sharing. Second, social exchange theory (SET) (Blau, 1964; Deutsch & Gerard, 1955) may provide a complementary theoretical basis to link cooperative climate and knowledge sharing behavior. Because a cooperative climate implies social exchanges among organizational members, SET hypothesizes that employees may show a tendency to "pay back" their colleagues. Third, a cooperative climate is likely to increase trust among employees, which has been demonstrated to be a strong predictor of knowledge sharing (Leana & Buren, 1999; Szulanski et al., 2004; Zaheer, Bill McEvily, & Perrone, 1998). Groups with great levels of internal trust are also more willing to share tacit knowledge, which is particularly valuable for organizational purposes (Lin, 2007). Fourth, social comparison theory (Festinger, 1954; Suls & Wheeler, 2000) argues that employees tend to compare with others when working in a social environment. Evidence suggests that when employees are part of a cooperative climate, their comparison with other members will result in a higher tendency to behave in a cooperative manner as well (Buunk, Zurriaga, Peíró, Nauta, & Gosalvez, 2005; Kelley & Thibaut, 1978). Therefore, they will be more likely to

engage in prosocial organizational behaviors such as knowledge sharing. Hence, we hypothesize that:

Hypothesis 1*: A collaborative climate in an organization is positively associated with knowledge sharing behavior among organizational members.*

2.2 Enhancing Primary Needs Through Knowledge Sharing

Self-determination theory (SDT) (Deci & Ryan, 1985, 2000) offers a theoretical framework to differentiate behaviors with respect to how self-motivated and volitional they are. Intrinsic motivation is defined as the desire to expend effort on a certain work based on interest in and enjoyment of the work itself (Gagné & Deci, 2005; Ryan & Deci, 2000). When intrinsically motivated, employees decide to expend effort based on personal enjoyment rather than on external cues (Kehr, 2004). Thus, intrinsically motivated employees value the content of the work itself as a source of motivation (Gagné & Deci, 2005). Knowledge sharing researchers are increasingly aware about the explanatory power of intrinsic motivation to explain knowledge sharing behavior (Bock et al., 2005; Cabrera & Cabrera, 2002; Lin, 2007; Quigley, Tesluk, Locke, & Bartol, 2007; Reinholt et al., 2011; Wasko & Faraj, 2005).

SDT also proposed that all individuals share three primary needs: autonomy, competence and relatedness. Those three needs are defined as essential nutriments for optimal human development and integrity (Gagné, 2009; Ryan, Sheldon, Kasser, & Deci, 1996). Thus, to the extent that certain action satisfy the needs for competence, relatedness and autonomy, individuals will show higher levels of intrinsic motivation towards the action, and therefore, will be less determined by external factors. Although these three needs are common to all individuals, individuals differ in the activities that they choose to comply with them (Deci and Ryan, 2000). In those cases where individuals perceive that engaging in a certain action can be a source to fulfill their primary needs, they will prefer to be the originators of the activity rather than pawns of the will of others (Deci & Ryan, 1985; Grant, 2008).

The theory also speaks to the importance of considering the nature of the activity itself as a source of intrinsic motivation, rather than the contextual factors. We propose that engaging in knowledge sharing may be viewed by some employees as a way to enhance their primary needs: by voluntarily engaging in knowledge sharing activities, needs for autonomy, relatedness and competence may be fostered. First, SDT research indicates that autonomy is presented when an employee perceives personal choice or volition when performing an action. Knowledge sharing is regarded as a discretionary behavior (Cabrera & Cabrera, 2002), and therefore may represent an opportunity to experience autonomy need satisfaction. Second, engaging in knowledge sharing may impact relatedness by promoting closeness to others, as well as cohesiveness or intimacy (Weinstein & Ryan, 2010). Knowledge sharing implies the building and development of social relationships (Reinholt et al., 2011). Therefore, some employees will conceive knowledge sharing as a way to energize their relatedness needs. Finally, knowledge sharing can be viewed as a way to enhance competence needs by some employees. By sharing knowledge, employees may feel that they act on the environment in ways that directly result in positive changes for their colleagues (Weinstein & Ryan, 2010). Along related lines, research shows that engaging in volunteering work elicits experiences of competence (Caprara & Steca, 2005). These arguments some employees will show a natural tendency to engage in knowledge sharing behavior. Thus, we hypothesize that the effects of a favorable social context –represented here by a cooperative climate – will be less influential for them to decide whether to engage in knowledge sharing.

In sum, although all employees may recognize that engaging in knowledge sharing provides a number of advantages for coworkers, organizations and their own work, we draw on SDT to argue that some will show a natural tendency to share while others not. The former will conceive knowledge sharing in as a source to fulfill their primary needs, and thus their knowledge sharing behavior will be less dependent of a cooperative climate. In contrast, the latter will not find knowledge sharing as a stimulating activity *per se*, and thus, a cooperative climate will become the necessary external force for them to engage in knowledge sharing. Therefore, we hypothesize:

Hypothesis 2*: Intrinsic motivation negatively moderates the relationship between cooperative climate and knowledge sharing.*

2.3 Benefiting from a Cooperative Climate: The Role of Job Autonomy

In spite of the seemingly obvious advantages of a cooperative climate in promoting knowledge sharing, employees' job characteristics may influence this link. Specifically, we expect the strength of the relationship between cooperative climate and knowledge sharing to differ across employees who are given different levels of job autonomy. Job autonomy refers to the degree of latitude employees possess in making job-related decisions. Employees with high levels of job autonomy have higher discretion in deciding what tasks to perform, how the work is to be done and how work exceptions are to be handled (Hackman & Greg R. Oldham, 1976; A. N. Turner & Lawrence, 1965). Hence, job autonomy is viewed as an opportunity for the employee to decide when and how to perform specific tasks. Empirical evidence shows positive relationships between job autonomy and a number of employees' behaviors in the organization, such as the proclivity to act proactively (Parker, Williams, & Turner, 2006) and personal initiative (Frese, Kring, Soose, & Zempel, 1996). By having greater autonomy, employees may free up time to engage in learning activities (Latham & Pinder, 2005).

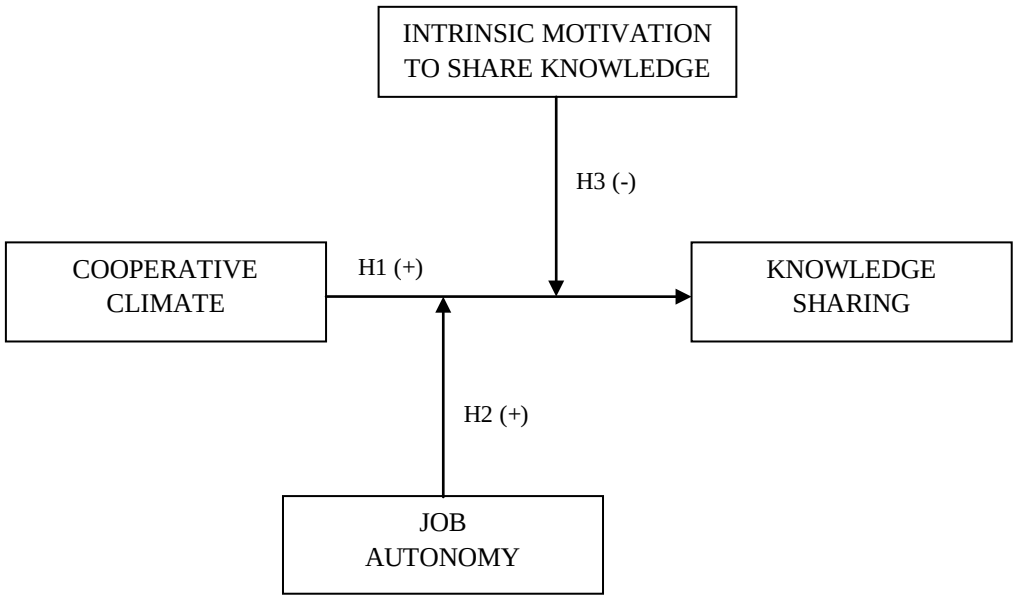
Empirical studies have found support for the positive link between job autonomy and knowledge sharing behavior (Cabrera, Collins, & Salgado, 2006; Foss et al., 2009; Gagné, 2009; Janz, Colquitt, & Noe, 1997). By giving employees higher levels of autonomy in their tasks, they will be more willing to search for more effective ways to perform their tasks and put higher efforts on their task performance (Fuller, Marler, & Hester, 2006). Given that knowledge sharing is recognized as a source to increase task effectiveness, a positive link between job autonomy and the engagement in knowledge sharing activities is predicted.

Further, Cabrera et al. (2006) argue that job autonomy may be viewed as a proxy that reflects a lack of instructions about the way that the job must be done. Thus, these employees higher in job autonomy will be more likely to engage in discretionary forms to improve their task performance. Such support may come when engaging in knowledge sharing behavior. Evidence of this idea can be found when analyzing employees performing creative tasks (Amabile, Conti, Coon, Lazenby, & Herron, 1996). It is very difficult to set up specific procedures to measure and reward creative outputs in the organizations (Osterloh & Frey, 2000). Therefore, employees engaged in creative activities are usually given high levels of autonomy to search for novel and useful ideas within the organization. Here, engaging in knowledge sharing activities seems to be a potential source to obtain and integrate new perspectives and, in turn, improve creative outputs related to the task to be performed (Oldham, 2003). Further, creative employees are more likely to rely on a wider range of ideas that may act as potential knowledge to be shared among other members in the organization.

Consequently, we expect that the freedom and latitude available to employees to make decisions in their jobs create opportunities for them to engage in knowledge sharing activities, and thus, reinforce the positive influence of a cooperative climate on knowledge sharing.

Hypothesis 3*: Job autonomy positively moderates the relationship between cooperative climate and knowledge sharing.*

All three hypotheses are summarized in Figure 1:



3. RESEARCH METHODS

3.1 Data Collection and Research Site

All data used in the analysis was collected in one single company. This implies that we controlled for contextual factors that may impact intra-organizational knowledge sharing ((Tsai & Ghoshal, 1998). This may be seen as an advantage over questionnaires addressed to a large number of firms but only a few (typically only one) respondents per company. Our objective was to reach employees of the firm potentially involved in knowledge sharing activities. To do so, we selected these departments especially involved in knowledge sharing (Engineering, R+D, Sales and Marketing, Technical Service and Purchasing). Because our goal was to examine employee`s motivation, job autonomy, climate and behavior we used self-reports to operationalize and measure the variables, following the line of most studies about work motivation (Bock et al., 2005; Cabrera et al., 2006; Szulanski, 1996) and human behavior (Howard, 1994). The adequacy of perceptual measurements to capture motivation is suggested due to difficulties in observing the variable (Ryan & Connell, 1989). Similarly, job characteristics (Foss et al., 2009) and climate features (Argote, Beckman, & Epple, 1990; Quigley et al., 2007) have been successfully captured by using self-reports.

The questionnaire was pre-tested with managers and management scholars to ensure the clarity of the questions and to avoid problems with the interpretation of the items, being distributed to employees from the selected departments in February 2007. Social desirability

bias (Tsai & Ghoshal, 1998) was reduced by informing the respondents that answers would be fully anonymous in all cases and that the data would be collected by an external server independent of the company. We obtained data from 263 employees of the 505 invitations that we sent out, providing an overall response rate of 52%. However, because of missing values for some items we eventually used 176 responses for the data analysis. This provides a highly satisfactory response rate of 35%.

3.2 Research Instrument

The data was collected using a web-based questionnaire, which was built from a comprehensive literature review. It was distributed to employees through a firm representative, who mediated in the distribution of the questionnaires and in the collection of responses. Common method bias might be a methodological concern as a consequence of the use of self-reports (Podsakoff & Organ, 1986; Spector, 2006). To diminish the risk of this bias, we reversed some of the scales of our questionnaire (Rust & Cooil, 1994). Additionally, we performed a Harman's one-factor test on the items to assess the severity of the common method bias. Harman's one-factor test is recognized as the most widely known approach for assessing CMV in a single-method research design (Podsakoff, MacKenzie, Podsakoff, & Lee, 2003). According to the test, CMV is assumed to exist if (1) a single factor emerges from unrotated factor solutions, or (2) a first factor explains the majority of the variance in the variables (Podsakoff & Organ, 1986: 536). In our model, we tested that our first two factors only capture 20% and 14% of the total variance, respectively.

3.3 Dependent Variable: Knowledge Sharing Behavior

According to existing literature (Davenport & Prusak, 1998), an accurate assessment of knowledge sharing should comprise the composition of two actions: (1) the employee's acquisition and use of knowledge and (2) the employee's provision of knowledge. Therefore, the *acquisition of knowledge* was measured by asking individual respondents to indicate the extent to which they have received/used knowledge from colleagues in their own department (2 items). Similarly, to assess the *provision of knowledge* we asked individual respondents to indicate to what extent colleagues from the same department have received and used the respondent's knowledge (2 items). The four items were measured on a seven-point Likert scale, where 1 = "no or very little extent" and 7 = "very large extent."The construct shows satisfactory reliability and validity (alpha-value=0.74, AVE=0.57, Composite reliability=0.84). The construct of knowledge sharing behavior was calculated as the average of the four items.

3.4 Independent Variables

Cooperative climate. Our items for the measurement of the cooperative climate are derived from Husted & Michailova (2002) and Michailova & Husted (2004). Although in their work they do not explicitly use the construct of "cooperative climate," they explicitly focus on the determinants of knowledge hostility. Further, similar constructs were used by Bock et al. (2005) and Collins & Smith (2006) to assess the influence of a cooperative climate in the exchange of knowledge among employees. To conceptualize cooperative climate, we specifically asked employees to indicate to what extent they agreed with the following statements: "Employees in my department cooperate well with each other", "Employees in my department prefer to create own knowledge rather than reusing others" and "Employees in my department perceive each other as competitors". All items were measured on a seven-point Likert stale ranging from 1="strongly disagree" to 7="strongly agree", and the last two

items were reverse-coded for the statistical analysis. The values of the construct reliability and AVE are 0.84 and 0.64, which are both highly satisfactory. The Alpha-value of the construct is 0.72, which denotes a high level of internal consistency.

Job autonomy. We measured job autonomy by adapting measures of job characteristics from Sims, Szilagyi, & Keller (1976). This measurement for job autonomy has showed adequate functioning in previous studies (Foss et al., 2009). The four items were measured by using a seven-point Likert scale ranging from 1= "strongly disagree" to 7 ="strongly agree", and the construct was calculated as the average of the three items. The Alpha-value for the construct is 0.74 and the composite reliability is 0.85. The AVE-value also shows a satisfactory value of 0.66.

Intrinsic motivation. To assess the intrinsic motivation to share knowledge, we adopted the scales from the Self-Regulatory Questionnaire (Ryan & Connell, 1989). This questionnaire is based on the Self- Determination Theory, which differentiates among intrinsic, identified, introjected and external motivation. We adapted the intrinsic motivation questionnaire in order to create the construct that captures the intrinsic motivation to share knowledge. Thus, the construct used in our questionnaire is aimed to reflect the intrinsic motivation to a specific behavior, that is, sharing knowledge across time. The obtained Alpha-value for the construct is 0.75, and it also shows satisfactory levels of reliability with values of for variance extracted (AVE) of 0.66 and composite reliability of 0.85.

Control variables. Drawing upon previous studies, our analysis includes a number of variables on the model to consider the effect of other factors not considered in the main regression. Some of the controls are inherent in the employee's job, while others refer to motivational and socio-demographical factors that may affect the dependent variable. Because employees can use both formal and informal channel to share knowledge (Stevenson & Gilly, 1991), those employees with more informal contacts may have more opportunities to share knowledge. To control for this, we asked respondents: "how often do you have the opportunity to talk informally with colleagues?" We also controlled for the extent employees are included in job rotation activities. Further, we controlled for employees' education level by computing the respondent's education. Since long tenured employees are expected to have greater work background, we also controlled for this by asking respondents the number of years they were employed in. Similarly, we controlled for the respondent's age. Finally, we included the external motivation to share knowledge as a control variable.

Table 1 shows zero-order correlations among the variables used in the regression analyses. None of the correlation coefficients exceeds the threshold of 0.3, which indicates that multicollinearity is a minor concern in the data. The mean value for the dependent variable (knowledge sharing) is 5.76 (on a seven-point Likert scale). It is remarkable that the level of intrinsic motivation to share knowledge is 5.54 (on a seven-point Likert scale), showing that on average, individuals are rather highly motivated to share knowledge. Furthermore, significant positive correlations existed between job autonomy and cooperative climate. It appears that, on average, individuals under a cooperative climate also have high levels of job autonomy in the organization.

TABLE 1: CORRELATION MATRIX (N=170)

	1	2	3	4	5	6	7	8	9	10
1.Knowledge sharing	1,00									
2.Cooperative climate	0,29**	1,00	0,12							
3.Intrinsic motivation	0,37**	0,12	1,00							
4.Job autonomy	0,33**	0,18**	0,23**	1,00						
5.Age	-0,03	0,03	0,00	0,03	1,00					
6.Education	0,01	-0,14*	0,17*	0,09	0,02	1,00				
7.Tenure	0,03	0,08	-0,02	0,17*	0,67**	-0,10	1,00			
8.Extrinsic motivation	-0,02	0,03	0,19**	0,14*	-0,07	0,16*	-0,02	1,00		
9.Informal contacts	0,32**	0,21**	0,08	0,09	0,04	-0,12	0,08	-0,18**	1,00	
10.Job rotation	0,13	0,22**	0,03	0,02	-0,10	-0,08	-0,05	0,19**	0,11	1,00
Mean	5,76	5,39	5,54	5,69	2,42	3,32	13,7	3,29	5,96	2,83
Std. Dev	0,93	1,09	0,91	1,01	1,02	1,24	10,62	1,26	1,09	1,82
Min. values	2,50	2,00	1,33	1,00	0	1	0	1	1	1
Max. Values	7	7	7	7	4	5	49	6,25	7	7

** and * indicates a significance level of 1% and 5% respectively

4. RESULTS

In order to test the hypotheses we used a hierarchical regression model. The independent variables were mean-centered before creating the interaction term (Aiken & West, 1991). Further, the Variance Inflation Factor (VIF) was calculated in order to detect potential problems of multicollinearity. The highest VIF value is 1.97 (Tenure, Table 2, Model 3), indicating no concerns regarding multicollinearity (Hair, Black, Babin, Anderson & Tatham, 2006). The results of the regression are reported in table 2.

TABLE 2: HIERARCHICAL MODERATED REGRESSION MODELS (N=170)

	Knowledge Sharing			
	Model 0 Control variables	**Model 1 Hyphotesis 1**	**Model 2 Hyphotesis 2**	**Model 3 Hyphotesis 3**
Intercept	5,74*** (0,07)	5,71*** (0,06)	5,73*** (0,06)	5,70*** (0,06)
Cooperative climate		0,15* (0,07) *1,15*	0,15* (0,07) *1,15*	0,15* (0,06) *1,15*
Intrinsic motivation		0,28*** (0,07) *1,13*	0,29*** (0,07) *1,13*	0,25*** (0,07) *1,24*
Job autonomy		0,23** (0,07) *1,16*	0,27*** (0,07) *1,21*	0,32*** (0,07) *1,33*
Cooperative climate * Intrinsic motivation			-0,20** (0,06) *1,10*	-0,20** (0,06) *1,10*
Cooperative climate * Job autonomy				0,12* (0,05) 1,20
- Age	-0,08 (0,09) *1,86*	-0,05 (0,08) *1,89*	-0,03 (0,08) *1,91*	-0,03 (0,08) *1,91*
- Education	0,06 (0,07) *1,07*	0,01 (0,07) *1,13*	0,00 (0,07) *1,13*	0,00 (0,07) *1,13*
- Tenure	0,07 (0,10) *1,88*	0,01 (0,09) *1,96*	0,01 (0,08) *1,96*	0,00 (0,08) *1,97*
- Extrinsic motivation	0,01 (0,08) *1,12*	-0,09 (0,07) *1,18*	-0,07 (0,07) *1,19*	-0,05 (0,07) *1,21*
- Informal contacts	0,32*** (0,08) *1,07*	0,22** (0,07) *1,13*	0,21** (0,07) *1,13*	0,22** (0,07) *1,13*
- Job rotation	0,09 (0,07) *1,08*	0,07 (0,06) *1,12*	0,07 (0,06) *1,12*	0,08 (0,06) *1,12*
N	170	170	170	170
F-value	3,71	8,07***	8,70***	8,55***
R-square	0,12	0,31	0,35	0,37
Adjusted R-square	0,09	0,27	0,31	0,33
F-test for increment in R^2		14,89***	10,18**	4,93*

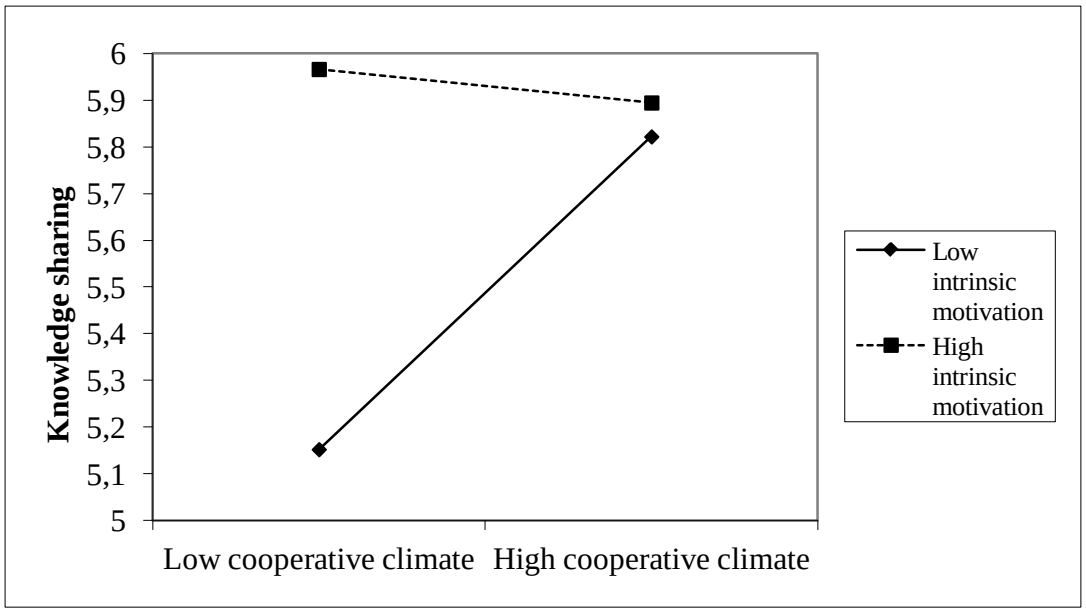
(Standard errors are listed in parentheses and the VIF-values in italics)[a]***, **, and * indicates a significance level of 0.1%, 1%, and 5%, respectively. [a] All independent variables are standardized.

At the first step (Model 0) we entered the control variables related to personal characteristics (age, education and tenure), opportunities to engage in knowledge sharing (job rotation and informal contacts) and extrinsic motivation. The explanatory power of the control variables is here limited (R-square = 0.12, $p < .01$) and only the variable "informal contacts" is significant (β=.32, $p < .001$). At the second step (Model 1) we included the three independent variables (cooperative climate, intrinsic motivation and job autonomy) to test the first-order association. All three variables are significant in the model which obtains an R-

square of 0.31 ($p < .001$). The results provide support for hypothesis 1, confirming that cooperative climate positively influences knowledge sharing ($\beta = .15$, $p < .05$).

As the third step (Model 2), we added the moderating effect of intrinsic motivation over cooperative climate. By adding the interaction, the explanatory power of the model reaches an overall R-square of 0.35. The significance of this increase is tested by the F-test ($F = 10.18$, $p < .01$). As suggested in hypothesis 2, the interaction between cooperative climate and intrinsic motivation is negative and significant ($\beta = -.20$, $p < .01$). To facilitate the interpretation of the interaction and following the recommendations of Aiken & West (1991), we plotted the simple slopes for the relationship between cooperative climate and knowledge sharing at one standard deviation above and below the mean of intrinsic motivation (Figure 2).

FIGURE 2: TWO-WAY INTERACTION BETWEEN COOPERATIVE CLIMATE AND INTRINSIC MOTIVATION



Regression slopes for the interaction of cooperative climate and intrinsic motivation predicting knowledge sharing behavior.

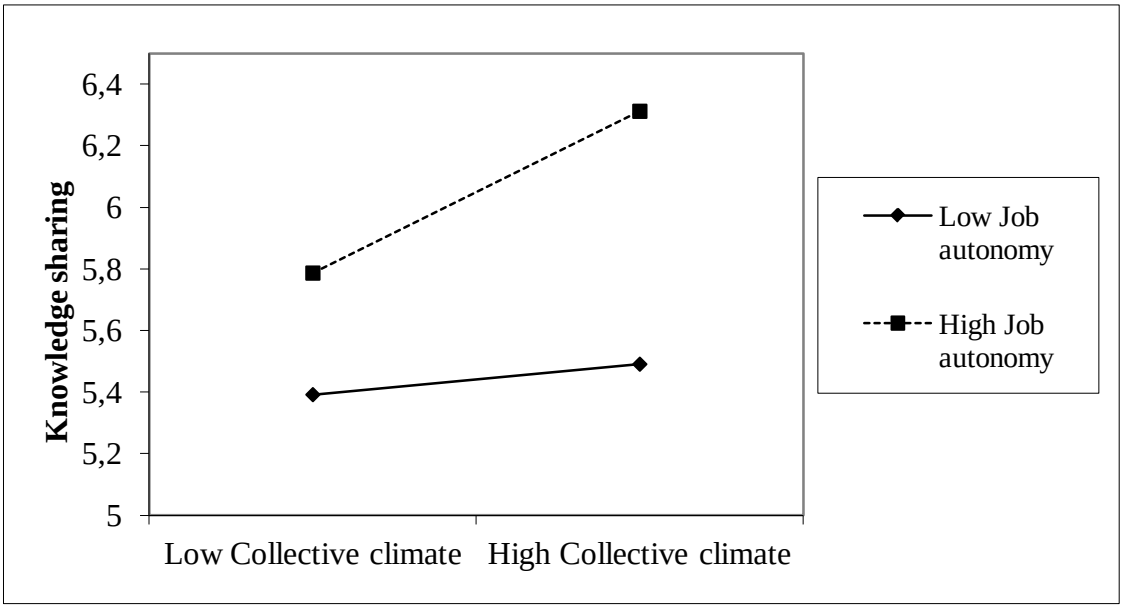
As shown in the figure, for highly intrinsically motivated employees, the impact of the cooperative climate into knowledge sharing is weak (dotted line). Conversely, employees with low levels of intrinsic motivation are more likely to be positively influenced by a cooperative climate to share knowledge.

In order to test hypothesis 3, in the fourth step (Model 3) we included the interaction effect between cooperative climate and job autonomy. The F-test shows a significant increase in R-square ($F = 4, 93$ $p < .05$) which jumps up to 0.37. In support of hypothesis 3, we found a

statistically significant interaction between cooperative climate and job autonomy ($\beta = .12$, $p < .05$) showing that the positive effect of a cooperative climate over knowledge sharing is stronger when employees have high levels of job autonomy.

As with intrinsic motivation, we plotted the simple slopes for the relationship between cooperative climate and knowledge sharing at one standard deviation above and below the mean of job autonomy (Figure 3).

FIGURE 3: TWO-WAY INTERACTION BETWEEN COOPERATIVE CLIMATE AND JOB AUTONOMY



Regression slopes for the interaction of cooperative climate and job autonomy predicting knowledge sharing behavior.

Employees with high levels of autonomy are more influenced by a cooperative climate (dotted line). For these employees with low levels of job autonomy, the effect of a cooperative climate is weaker.

5. DISCUSSION

5.1 Theoretical implications

The results yield a number of theoretical implications that build upon and clarify prior research. First, they add to our understanding of the factors that are important for greater levels of intraorganizational knowledge sharing. Previous research shows that facet-specific climates and motivators (e.g.: Lin, 2007) are related to knowledge sharing. By considering knowledge sharing as a source itself of intrinsic motivation, we have shown that a cooperative climate becomes crucial when individuals does not conceive the activity itself as intrinsically motivating. These finding are important because although there has been considerable research into the social drivers of knowledge sharing, our research suggests that its explanatory power is not homogeneously dispersed across all individuals. Second, the finding that job autonomy moderates the link between a cooperative climate and knowledge sharing

provides insight into how job design features can be managed to take advantage from a favorable climate towards knowledge sharing. Previous research suggested positive links between job autonomy and knowledge sharing (Cabrera et al., 2006). By integrating job autonomy and cooperative climate, we view job autonomy as a source of heterogeneity that helps to explain why some individuals will be more affected by a cooperative climate while others not.

5.2 Limitations

Notwithstanding the mentioned contributions, our research is subject to a number of limitations. First, although our study suggests a causality relation between organizational climate and knowledge sharing, our cross-sectional data do not rule out the possibility of alternative causal pathways. For example, some studies on organizational climate suggest that the perception of the climate is affected by individual's prior level of motivation (Parker et al., 2003). In this regard, James & McIntyre (1996) argue that because situations can serve to satisfy or frustrate individual needs, individuals may manipulate situations to increase the congruence with their psychological needs. Therefore, it may be argued that employees can perceive the organizational climate in accordance with their previous motivation towards a certain action (James, Hater, Gent, & Bruni, 1978). However, we believe that this is not a major concern in our investigation because some research indicates that individuals intrinsically motivated have greater precision in processing external information (Koestner & Losier, 2004; Ryan & Connell, 1989). Nevertheless, future research using experimental or longitudinal designs is recommended to examine the direction of causality.

5.3 Managerial Implications

The effects we discovered are also meaningful from a managerial standpoint. Given the strategic importance of knowledge sharing for organizations, the creation and maintenance of a cooperative climate has become an increasingly important objective for management. However, this paper shows that the relevance of a cooperative climate is neither homogeneous nor necessary for all employees. Rather, our finding suggests that managers can achieve employees to share knowledge not only by promoting a cooperative climate, but also by conceiving voluntary knowledge sharing as a way to fulfill employees' primary needs. Further, intrinsically driven behaviors may be compromised by a normative environment (Deci & Ryan, 1985; Harackiewicz & Manderlink, 1984). Given this fragile nature of intrinsic motivation, managers should consider whether encouraging a cooperative climate may derive for some employees in a perceived norm to share and thus, reduce their natural tendency to do it. By developing the idea that knowledge sharing can be an stimulating activity *per se*, we also provide managers an indication of the clear importance of promoting ways to share knowledge in the organization that can be viewed intrinsically motivating.

Moreover, our research suggest that management can directly strengthen the impact of a cooperative climate on knowledge sharing by providing employees with high levels of job autonomy. Our research shows that increased levels of discretion about how to perform tasks permits employees to be more engaged in knowledge sharing activities. Given the extrarole nature of engaging in knowledge sharing, job autonomy allows employees to have an opportunity to benefit from a cooperative climate by engaging in knowledge sharing. To the extent that providing employees higher levels of autonomy is likely to be easier than shaping the organizational climate, managers should make sure that enough autonomy are given to employees to benefit from a cooperative climate. Thus, jobs may be designed to let employees to take advantage of being in a cooperative group. For example, by providing

employees with little specific instructions to perform their job, they will be implicitly obligated to engage in knowledge sharing practices to find efficient ways to complete their tasks (Cabrera et al., 2006).

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